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VIA ELECTRONIC AND U.S. MAIL

Re: Eliot, Maine Good Neighbor Petition Pursuant to Clean Air Act Section 126

Dear Regional Administrator Spalding, Air Programs Branch Chief Conroy, Director Wayland, and Gobeail McKinley,

Sierra Club recently received a copy of Public Service Company of New Hampshire ("PSNH")'s comments concerning the Town of Eliot, Maine's Good Neighbor petition pursuant to Clean Air Act Section 126 regarding sulfur dioxide ("SO_2")

pollution generated by PSNH's Schiller Station that flows across the border into communities in Maine. In particular, Sierra Club wanted to respond to the arguments PSNH's hired consultant, Exponent, makes concerning the modeling underlying the Petition. Although Exponent styles many of its arguments as identifying "flaws" in the August 2012 and July 2013 modeling (copies of reports of which are attached hereto as Exhibits 1 and 2, respectively) supporting Eliot's 126 Petition, addressing those concerns and adopting Exponent's proposals actually *increases* the modeled impacts from Schiller Station.

The Modeling Supports Eliot's Good Neighbor Petition

First and foremost, Sierra Club does not agree that Exponent's criticisms are valid. Many of the arguments Exponent raises are exceedingly trivial. For example, Exponent claims that the August 2012 modeling supporting Eliot's Petition is flawed because it did not use editions of AERMET and AERMOD that did not exist at the time when the modeling was done, although Exponent does not explain what if any impact would flow from using the later software versions.[1] Similarly, PSNH and Exponent criticize the use of flagpole receptors in the modeling that place receptors at 1.5 meters above the ground (or at lung-height), instead of placing them on the ground. Likewise, Exponent criticizes the modeling for not employing certain new "non-regulatory options" in AERMOD. However, these beta options are not regulatory default options for running AERMOD, have not been adopted for use by EPA, and, moreover, actually increase modeling output variability while decreasing modeling performance and accuracy.[2]

Secondly, and notably, PSNH does not appear to have undertaken its own modeling of Schiller Station; had it done so, it would have realized that Exponent's proposed changes result in *increased* modeled impacts. Although Sierra Club does not agree with Exponent's criticisms, Sierra Club has undertaken remodeling of emissions from Schiller Station for precisely the same time intervals used in the July 2013 modeling report, incorporating the suggestions made by Exponent.

[1] The August 2012 modeling used AERMOD v11103, AERMET v11059, and AERSURFACE v08009. Exponent complains that this 2012 modeling did not use AERMOD and AERMET v11350 and AERSURFACE v13016, despite the fact that these updated versions were not available until December 16, 2013 and January 16, 2013, respectively.

[2] *See, e.g.*, Camille Sears, Evaluating Performance of the AERMOD/AERMET v. 12345 Beta Options (July 21, 2013), attached hereto as Exhibit 3. Sears's study involved using the Beta options in modeling the historical data sets for the field studies EPA used to validate AERMOD; the study found that the beta options, far from improving AERMOD performance, actually decrease model performance and increase variability in modeled impacts.

Table 1: Comparison of July 2013 Modeling and April 2014 Modeling

3-Year Time Period	Emissions Type [3, 4, 5]	Average Emissions from Each Unit (lbs/hr)	July 24, 2013 Analysis		April 22, 2014 Analysis		NAAQS ($\mu g/m^3$)
			Maximum Impact All Locations ($\mu g/m^3$)	Maximum Impact In Maine ($\mu g/m^3$)	Maximum Impact All Locations ($\mu g/m^3$)	Maximum Impact In Maine ($\mu g/m^3$)	
2006 – 2008	Allowable	1,377.6	745.9	745.9	952.7	952.7	196.2
	Maximum	1,129.1	611.4	611.4	780.0	780.0	
	Actual SO_2 & Velocity	508.2	338.0	338.0	389.3	389.3	
2007 – 2009	Allowable	1,377.6	824.1	824.1	956.2	956.2	
	Maximum	1,129.1	676.0	676.0	783.6	783.6	
	Actual SO_2 & Velocity	466.8	332.7	332.7	365.2	365.2	
2008 – 2010	Allowable	1,377.6	767.7	767.7	883.7	883.7	
	Maximum	1,129.1	629.4	629.4	723.9	723.9	
	Actual SO_2 & Velocity	448.1	276.2	276.2	323.2	323.2	
2009 – 2011	Allowable	1,377.6	794.8	794.8	902.8	902.8	
	Maximum	1,129.1	651.1	651.1	739.7	739.7	
	Actual SO_2 & Velocity	323.7	204.2	204.2	257.9	257.9	
2010 – 2012	Allowable	1,377.6	763.9	763.9	925.0	925.0	
	Maximum	1,129.1	625.3	625.3	758.0	758.0	
	Actual SO_2 & Velocity	215.3	168.8	168.8	190.1	190.1	
4/2010 – 3/2013	Allowable	1,377.6	746.8	746.8	947.3	947.3	
	Maximum	1,129.1	611.2	611.2	775.2	775.2	
	Actual SO_2 & Velocity	211.1	192.9	192.9	246.4	246.4	

This new April 2014 modeling addresses the arguments raised in PSNH's Exponent analysis: hourly emissions data was re-pulled from EPA's Air Markets Database, building downwash data was employed, exit velocities were adjusted upwards based on data provided in Exponent's analysis, flagpole receptors were eliminated, the "wet" setting was used for the Bowen ratio in the AERSURFACE and AERMET

[3] Allowable emission rates of 2.4 lbs/MMBtu are from Schiller Station's Temporary Permit TP-0106 issued October 30, 2012 by NHDES.

[4] Maximum emissions are based on measured hourly rates reported for 2010 in EPA's Air Markets Database.

[5] Actual emissions are the emissions measured each hour during the 2006 to 2013 period as reported in EPA's Air Markets Database.

processing of weather data, the instrument location of 43.279° N, 70.924° W was used for the Skyhaven surface roughness determination, and a Skyhaven instrument height of 7.92 meters was employed. Further, the current versions of AERSURFACE, AERMET, and AERMOD were all used for the modeling analysis.[6] Otherwise, the modeling methodology matches the July 2013 modeling, with the exception that some additional receptors were placed in Eliot. Copies of all the underlying modeling files for this analysis are attached hereto as Exhibit 4.

As Table 1 demonstrates, for every three-year period examined in the July 2013 modeling, using PSNH's suggested changes increase the modeled impacts—by on average as much as roughly 16% for the actual hour-by-hour emission runs. Note that both the July 2013 and the April 2014 modeling do not include any background concentrations of SO_2, and are instead wholly concerned with modeled impacts due to emissions from Schiller Station alone.

PSNH also criticizes the use of meteorological data from Skyhaven Airport, arguing that data from Portsmouth Airport should be used instead. However, PSNH's preferred met data source includes over 4 times as much missing data, and over 4 times as many hours of calm winds data, as does the met data source used in the July 2013 modeling, amounting to almost 15% of all hours (or almost 1 in 7). *See* July 2013 Modeling Report at 10. Such calm and missing data effectively drops out of the model, leaving a very incomplete picture of modeled emissions, should that set be used. Nonetheless, Sierra Club actually *did* model emissions from Schiller Station using PSNH's preferred met data source (see August 2012 Modeling Report). The results of that modeling show that, in order to avoid causing exceedences of the SO_2 NAAQS in Maine, Schiller Station would have to emit at a rate of no higher 0.81 lbs SO_2/MMBtu; yet, in 2013, Schiller Station emitted SO_2 at a rate exceeding 0.81 lbs/MMBtu for over 3,100 hours, or roughly 90% of the time Schiller's coal-fired boilers were operating. *See* Exhibit 5 (data taken from EPA Air Markets Database).

Accordingly, PSNH's criticism of the modeling supporting the Eliot Good Neighbor Petition is unfounded: the August 2012, the July 2013, and the April 2014 modeling analyses all show nonattainment and interference with maintenance of the 1-hour SO_2 NAAQS in southern Maine.[7]

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[6] The Beta options were not, however, employed, as they are neither required nor recommended by any EPA guidance, and, as noted above, actually decrease model performance.

[7] PSNH's other arguments are likewise unavailing. PSNH's claims that a section 126 petition cannot be entertained before a nonattainment area designation is made, or that Maine is somehow already attaining the standard by virtue of EPA declining to yet promulgate a designation for Maine, or that allowables or potential-to-emit modeling akin to the August 2012 modeling is improper analysis for a 126 petition all run directly contrary to both EPA's own methodology and findings in the New Jersey section 126 petition concerning the Portland plant in Pennsylvania and the Third Circuit's decision affirming EPA's grant of that petition. *See* U.S. EPA "Final Response to Petition from

Please let me know if there is additional information the Sierra Club could provide, or if there are any questions the Club could answer.

Sincerely,

_____/s/_____

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New Jersey Regarding SO_2 Emissions from the Portland Generating Station," 76 Fed. Reg. 69,052 (Nov. 7, 2011) (granting petition where potential to emit modeling demonstrated nonattainment and prevention of maintenance of the 1-hour SO_2 NAAQS); *GenOn REMA, LLC v. U.S. EPA*, 722 F.3d 513 (3rd Cir. 2013) (affirming grant of 126 petition prior to completion of area designations and State Implementation Plan development, where petition was based on potential to emit AERMOD modeling).

PSNH's other argument, that Maine DEP is a political subdivision but the Town of Eliot is not, contradicts not only common sense (Maine DEP is neither political nor a subdivision), but PSNH's own proffered citation to 40 C.F.R. § 52.30, which considers "political subdivisions" to consist of a "city, town, borough, county, parish, district, or any other geographical subdivision created by, or pursuant to, Federal or State law." Such an interpretation is a slap in the face to the Town, its representative Board of Selectmen, and its direct-democracy Town Warrant (in which the Eliot citizenry voted overwhelmingly to send its Good Neighbor Petition to EPA). *See, e.g.*, WMTW.com, "Maine town asks EPA to investigate Portsmouth power plant emissions," (August 28, 2013), *available at* http://www.wmtw.com/news/maine/maine-town-asks-epa-to-investigate-portsmouth-power-plant-emissions/21677898 (noting Eliot's "nearly 2-1 vote in favor of the petition").